



Bernardi, R., & Exworthy, M. (2020). Clinical managers' identity at the crossroad of multiple institutional logics in IT innovation: the case study of a healthcare organisation in England. *Information Systems Journal*, 30(3), 566-595. <https://doi.org/10.1111/isj.12267>

Peer reviewed version

Link to published version (if available):
[10.1111/isj.12267](https://doi.org/10.1111/isj.12267)

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CLINICAL MANAGERS' IDENTITY AT THE CROSSROAD OF MULTIPLE INSTITUTIONAL LOGICS IN IT INNOVATION: THE CASE STUDY OF A HEALTHCARE ORGANISATION IN ENGLAND

Abstract

Clinical managers play a crucial role in securing the implementation and sustainability of IT innovation in healthcare. Yet, not all clinical managers are willing and able to support IT innovation, particularly when the institutional logics of an IT innovation challenge their professional practice. We investigate how clinical managers use their hybrid identities to reconcile differences among competing institutional logics that affect IT innovation. Based on three examples of IT innovation (telehealth for Obstructive Sleep Apnoea, telehealth for Heart Failure, and Electrocardiograms) in a healthcare organisation in England, we identify three roles in IT innovation (innovation advocate, innovation broker, innovation laggard) that clinical managers enacted in response to three degrees of conflict between institutional logics (no conflict, moderate conflict, and high conflict), respectively. We make the following contributions. First, we demonstrate how clinical managers' perception of their hybrid role in relation to their professional identity influences their response to the conflicting institutional demands of IT innovation. We conclude that clinical managers' fragmented identities can compromise their ability to effectively manage IT innovation in healthcare. Second, our findings raise implications for understanding the role of professionals' hybrid identities in the implementation of digital transformation at the intersection of multiple institutional logics.

Keywords: IT innovation, healthcare, institutional logics, professional identities, telehealth

MANAGING IT INNOVATION ACROSS MULTIPLE INSTITUTIONAL LOGICS

Information Technology (IT) innovations are, for the most part, complex initiatives that involve various stakeholder organisations and professions. These different stakeholders hold divergent expectations of what an IT innovation should do and how it should be deployed, often, retarding its adoption and implementation (Bunduchi et al., 2015; Sandeep & Ravishankar,

2014). Multiple interpretations of an IT innovation resonate different institutional logics (Boonstra et al., 2017), namely, the cultural resources and norms that shape the way individuals perceive their social reality and, therefore, guide their behaviours and decisions (Friedland & Alford, 1991).

Compared to other industries, the tension among multiple logics and their effect on IT innovation is even more sharply defined in healthcare (Currie & Guah, 2007; Doolin, 2004). In the past three decades, various Western countries have adopted New Public Management (NPM) reforms (Lynn, 2006) that prioritize IT innovation to promote the logic of managerialism, that is, a set of principles and practices that value cost-efficiencies, performance, and accountability (Reay & Hinings, 2009). The managerialism of these reforms clashes with the logic of medical professionalism, which safeguards the autonomy of clinical practice in the provision of patient care (Reay & Hinings, 2005, 2009). More recently, healthcare policies and IT innovations that promote health self-management and home-based monitoring have contributed to the diffusion of the logic of patient-centred care (PCC). This logic promotes a care model that empowers patients to make informed decisions giving them more control over their own health (Shaw et al., 2017). It thus challenges medical professionalism by diminishing the authority of medical practitioners over patients' decisions. Hence, medical professionals who occupy managerial positions and are often in charge of IT innovation are challenged with the task of integrating new technologies into day-to-day work while safeguarding the integrity of medical practice.

In this paper we explore how hybrid managerial professionals, such as clinical managers, deploy their multiple identities and social position to facilitate IT innovation while having to manage competing logics such as medical professionalism, managerialism, and PCC. We define clinical managers as doctors who, compared to other healthcare professionals such as nurses, usually occupy a high managerial position in the hierarchy of an organisation (e.g. clinical directors). They thus have authority and resources to mobilize organisational and professional stakeholders and influence change (Exworthy & Halford, 1999). In addition, clinical managers are "hybrids", i.e. they share both clinical and managerial responsibilities (Fitzgerald et al., 2013; McGivern et al., 2015). As such, they are in a

privileged position to facilitate IT innovation by spanning the boundaries among managerial and professional communities (Baeza et al., 2008; Fitzgerald et al., 2013), their respective logics (McDonald et al., 2013), and PCC.

Yet, not all clinical managers are willing to leverage their social position to act more independently from professional control and reconcile differences among multiple institutional logics (Causer & Exworthy, 1999; Ferlie & Pettigrew, 1996; McGivern et al., 2015). Their task becomes even more challenging when IT innovations are carriers of an emerging logic like PCC. Not only does this logic compete for attention with managerialism and medical professionalism, but it can also create conflict with their professional practice without sharing elements with their hybrid identities. Hence, our objective is to investigate clinical managers' role of mediating between competing logics when they are faced with the responsibility of facilitating IT innovation. We will therefore address the following research question: *how do clinical managers reconcile differences among competing institutional logics that affect IT innovation in healthcare?*

Our study makes the following contributions to debates about IT innovation and professions. First, even though existing research has recognised the role of medical professionals in influencing IT innovation (Davidson & Chismar, 2007; Oborn et al., 2011; Rivard et al., 2011), less attention has been paid to the implications of clinical managers and their hybrid identities for the success of IT innovation. Knowing how clinical managers are willing and able to support IT innovation is important given that, in the majority of cases, IT innovations in healthcare hardly go beyond the pilot phase (Andreassen et al., 2015; Barlow et al., 2006), and the leadership of influential actors like clinical managers can contribute to their sustainability (Martin et al., 2012).

Second, we further our understanding of the role of professionals in managing competing logics that affect IT innovation. As shown in recent research, different occupational groups influence IT implementations by loosely coupling their practices to multiple logics, i.e. they accept elements of a new logic without changing their day-to-day practices (Berente & Yoo, 2012;

Boonstra et al., 2017). We demonstrate how actors shift across multiple logics and, thereby, affect IT innovation by managing their hybrid identities.

Our analysis draws on existing research on institutional logics and the re-stratification thesis (Freidson, 1994) to understand clinical managers' role in reconciling differences among competing logics that influence IT innovation. We use the empirical case of three examples of IT innovation, digitally-enabled Electrocardiograms (ECGs) and two telehealth projects, to illustrate, explain, and amplify theoretical perspectives. Our case study focuses on the role of clinical managers of a healthcare organisation in England in making recommendations for the use of ECGs by primary care doctors and the development of two telehealth projects, one for patients with Obstructive Sleep Apnoea (OSA) and the other for patients with Heart Failure (HF). Both OSA and HF are chronic conditions that burden most healthcare systems globally. The fact that some primary care doctors in England hold a position as clinical managers gives us the opportunity to understand how the relationships with their profession may influence their will and ability to manage conflicting institutional demands for the sake of IT innovation. In addition, the comparison between a more traditional type of IT innovation like ECGs and more advanced IT-enabled services like telehealth gives insight into the different institutional consequences of different types of IT innovations.

INSTITUTIONAL LOGICS AND IT INNOVATION

Institutional logics constitute the norms and beliefs that regulate the behaviour of individuals and the selection of technologies (Lounsbury, 2002; Thornton & Ocasio, 1999). Due to their normative power, logics can constrain human action and be a source of resistance to change (Marquis & Lounsbury, 2007) and IT innovation (Sandeep & Ravishankar, 2014). Nevertheless, new practices and technologies carry with them new institutional logics (Rajao & Hayes, 2009), which, in turn, challenge the dominant logic of an organisational field. An organisational field is an aggregate of organisations (e.g. suppliers, customers, regulatory bodies) that provide similar services and products (DiMaggio & Powell, 1983). In healthcare, an organisational field is formed by those organisations that contribute to the provision of health

services to a population, such as hospitals, health regulatory authorities, and medical professional bodies. New logics that challenge the dominant logic of an organisational field can become a source of new meanings and practices that actors may enact to bring about change (Lounsbury, 2007; Thornton & Ocasio, 1999).

With a few exceptions (Mola & Carugati, 2012), most research in Information Systems (IS) shows how tension between logics persists across time (e.g. Hayes & Rajao, 2011), which plunges IT-enabled transformations in a precarious equilibrium that is continually contested and renegotiated. For example, as an attempt to compromise between conflicting logics, a new technology can be readapted to conform to the practices and norms of the implementation context (Carugati et al., 2018; Davidson & Chismar, 2007). Few studies have analysed the implications of compromising between multiple logics when different occupational roles or professions are involved. Loose coupling is an example of how users can deal with compromise and ambiguity between multiple logics. For example, by separating automated monitoring from actual performance of activities, users adapt to managerialism without changing their core professional practices (Berente & Yoo, 2012). Users remain loyal to the logic of their profession and are more likely to loosely couple their practices to a new logic when they have worked in different occupational roles (Boonstra et al., 2017). This is the case of professionals taking on a managerial role. As shown in other studies, hybrid identities influence the extent to which managerial professionals are willing to compromise between logics (McGivern et al., 2015). By drawing on the example of clinical managers in charge of IT innovation, we adopt the concept of hybrid identities to understand better how actors navigate multiple institutional logics in making IT-related decisions.

INSTITUTIONAL LOGICS AND IT INNOVATION IN HEALTHCARE

In the health sector, various studies have documented the existence of two main logics: the logics of medical professionalism and managerialism (Currie & Guah, 2007; Reay & Hinings, 2005; van den Broek et al., 2014). Under a logic of medical professionalism, medical professionals such as primary and secondary care doctors prioritise their relationship with the patient and value

their autonomy in controlling the provision and quality of the health service (Kitchener & Exworthy, 2008). By contrast, the logic of managerialism reflects health sector reforms to improve the efficiency and performance of the health service (Kitchener, 2002). This logic influences the running of day-to-day operations in hospitals. This is evidenced by an increasing number of medical professionals taking on managerial roles as well as paying attention to costs and resources in the performance of routine tasks (Carvalho, 2012). In addition, the logic of managerialism has driven the introduction of market and competition, which, in England, translates into the commissioning of health services (Allen et al., 2017). The commissioning function that some medical professionals are required to assume is thus part of the logic of managerialism (Martin et al., 2017).

A third and less documented logic is patient-centred care (PCC). PCC is an emergent logic that is not fully established and has elements of overlap with other logics. PCC has its roots in consumerism (fostered by managerialism) (Latimer et al., 2017), the rise of expert patients (enabled by the internet) (Petrakaki et al., 2018), and the reaction against professional paternalism (Kitson et al., 2013). To date, very few studies have analysed PCC as an institutional logic (Shaw et al., 2017). After realising the pitfalls of acute care in the management of complex and long-term chronic conditions, policy-makers in various countries have promoted the diffusion of this logic through policies that drive the transition from hospital care to home-based care for improved patient satisfaction and cost-efficiencies (Klecun, 2015). Whereas medical professionalism only recognizes the authority of clinicians in the provision of patient care, PCC requires healthcare organisations and professionals to re-orient their thinking and processes and encourages patients to participate actively in their care (Kitson et al., 2013; Shaw et al., 2017). In addition, the saving logic of managerialism does not always agree with the PCC logic of putting patients first. Table 1 compares the three logics in healthcare based on the framework in Thornton et al. (2012).

Categories	Logic of managerialism	Logic of medical professionalism	Logic of patient-centred care (PCC)
Sources of legitimacy	Managerial roles, performance management (Doolin & Lawrence, 1997).	Education, medical knowledge and expertise (Currie & Guah, 2007).	Patient experience of living with an illness (Kitson et al., 2013).
Sources of authority	Organisational hierarchy, government bodies, and regulation (Reay & Hinings, 2005).	Professional authority, patients should follow medical direction (Reay & Hinings, 2009).	Patients take control of their care in collaboration with clinicians (Kitson et al., 2013).
Sources of identity	Hospital as an integrated business (Boonstra et al., 2017).	Association with professional body (McDonald et al., 2009).	Patients participate in their care as autonomous individuals (Kitson et al., 2013).
Basis of norms	Cost-effective treatment, lowest-cost provider, customer satisfaction (Reay & Hinings, 2009).	Technical quality of healthcare (Kitchener, 2002).	Holistic approach to health congruent with patients' needs, preferences, and experience (Klecun, 2015).
Basis of attention	Focus is on efficiency in administering health services and performance monitoring (Reay & Hinings, 2009).	Focus is on doctor-patient relationship, autonomy in controlling quality of healthcare (Kitchener & Exworthy, 2008).	Focus is on empowering patients to make health decisions (Shaw, 2016) and shift hospital care to home care (Klecun, 2015).
Basis of strategy	Minimize costs, improve performance outcomes (Reay & Hinings, 2005).	Increase professional reputation (Kitchener, 2002).	Increase patients' responsibility for their own care at home to improve patient satisfaction and reduce costs (Klecun, 2015).
Informal control mechanisms	Mass media and public scrutiny (Elston, 2009).	Patients' expectations of care quality (Kyratsis et al., 2017).	Patient advocacy groups.
Governance mechanism	Market relationships (e.g. commissioning of health services) (Allen et al., 2017).	Self-regulation – professional accountability (Dixon-Woods et al., 2011).	Inter-organisational arrangements between health and social care (Shaw, 2016).

Table 1. Comparison of institutional logics in healthcare

Research has shown that IT innovations can reproduce tensions among competing logics. For example, clinical management information systems often respond to the managerialist logic of performance and efficiency in healthcare resource management and clinical practice (Currie & Guah, 2007; Doolin, 2004). The introduction of these systems creates tension with medical professionalism by disrupting established patterns of work (Boonstra & Van Offenbeek, 2010; Nicolini, 2006; Petrakaki et al., 2012) and challenging the professional autonomy of clinicians (Abraham & Junglas, 2011; Davidson & Chismar, 2007; Doolin, 2004; Exworthy, 2015; Exworthy et al., 2003). To date, very few studies have focused on IT innovations that promote PCC as well as managerialism. Telehealth home monitoring solutions are a clear example of such innovations (Klecun, 2015).

Telehealth is the IT-enabled provision of medical services without in-person interactions between physicians and patients (Bashshur & Lovett, 1977). Telehealth can enable different types of remote encounters, including telecommunications links between healthcare facilities for the remote provision of specialist medical interventions (such as in telesurgery) and patient-physician teleconsultations (such as in teledermatology) (Di Cerbo et al., 2015). Our use of the term telehealth in this paper refers specifically to another type of intervention called remote patient monitoring, namely, the provision of care directly in the home of patients through the use of IT-enabled monitoring systems (Barlow et al., 2006). Whilst doctors are responsible for the care of patients, telehealth can delegate patients' monitoring to nurses or even to the patients themselves. The system can flag either a doctor or a nurse of the need for medical intervention. Telehealth is therefore a complex IT innovation that involves various stakeholders across professional and organisational boundaries. It might clash with existing norms, values and views of how care should be provided and reconfigure the power positions among stakeholders (Boonstra & Van Offenbeek, 2010).

Telehealth can thus be the carrier of multiple logics. For example, through remote monitoring of patients, telehealth works as a preventative measure to avoid admissions and is therefore a carrier of the managerialist logic of reducing costs. At the same time, telehealth can enable a fast and accurate response to patients' needs. It thus improves the quality of care and

responds to the logic of PCC (Klecun-Dabrowska & Cornford, 2000; McDonald, 2017).

We conclude that the success of IT innovation in healthcare depends on how stakeholders shape and are shaped by the tensions among competing logics and the misalignment of interests and values that such logics entail (Bunduchi et al., 2015). Influential actors are often considered in a strong position to mediate differences among stakeholder groups (Boonstra et al., 2008; Cho & Mathiassen, 2007) and shift opinion in favour or against IT innovation (Kaganer et al., 2010; Pouloudi et al., 2016). The focus of this study is on the role of clinical managers in seeking to gain support for IT innovation among medical professionals.

CLINICAL MANAGERS' IDENTITY AND IT INNOVATION

Medical professionals filling clinical managerial posts continue practising their profession to maintain professional credibility, while they have the responsibility to promote efficiency and accountability within their professional practice and the healthcare establishment that they manage (Causer & Exworthy, 1999). These positions are often thought to enhance the performance of the organisation (Goodall, 2011). In England, some primary care doctors have a unique position in commissioning local health services and constitute a clear example of clinical managers that could be strongly influenced by their clinical colleagues (Kitchener & Exworthy, 2008; Zachariadis et al., 2013, p. 11). How clinical managers continuously negotiate their new managerial role in relation to their medical professional identity has implications for how they facilitate and manage IT innovation. If they perceive their hybrid role as violating their core professional identity, clinical managers are less likely to construct a hybrid identity (Spyridonidis et al., 2015). Likewise, clinical managers may not enforce the use of IT to control clinical practice if they see it as a violation of their professional autonomy and identity (Numerato et al., 2012).

In this paper, we draw on Freidson's (1994) re-stratification thesis to understand clinical managers' ability to influence IT innovation not just in relation to their organisational power but also with regard to their clinical authority over fellow clinicians. In his re-stratification thesis, Freidson

challenged the idea of de-professionalisation due to bureaucratic and market-driven changes within organisations. He argued that professions could readapt to such changes as well as maintain professional power and autonomy. In particular, he posited that professions could reorganise themselves and operate across three main strata in order to maintain their autonomy from managerialism: the knowledge elite, the administrative elite, and rank and file (Waring, 2014). The “knowledge elite” represents research or professional bodies that create, codify, and disseminate knowledge in the form of standards and guidelines that govern professional practice. The “administrative elite” are professional-managerial hybrids, such as clinical managers, who enforce standards of good professional practice on rank-and-file practitioners (e.g. clinicians) (Waring, 2014). Clinical managers that are willing to transform medical practice through managerialism exercise their autonomy and power over their clinical colleagues (“rank and file”) within the limits of what is considered legitimate according to their professional standards and, therefore, appropriate for the “knowledge elite” (Ferlie & Pettigrew, 1996; McGivern et al., 2015; Scott, 2008).

Recent academic work has revisited this idea of the hierarchical organisation between administrative elites and rank and file within the re-stratification thesis. Such work argues that the role of administrative elites in promoting change in professional practice may not necessarily undermine professional collegiality, i.e. members’ cohesion around the values, customs and norms of their profession (Waring 2014). For example, in a study about primary care in England, McDonald et al. (2009) show that rank-and-file doctors are willing to cooperate with the administrative elite in the realisation of change that they perceive as important for the reputation and integrity of their profession or as a way to protect their routine practice from further managerial intrusion. Thus, clinical managers that are united with rank and file by a high sense of professional collegiality can be protectors of their profession rather than channels for managerialism and, at the same time, act as reformers by readapting the managerial logic in a professional guise. Therefore, the re-stratification thesis is useful to understand to what extent clinical managers (or administrative elite) exercise their power and authority over their clinical colleagues (rank and file) in order to facilitate IT innovation.

METHODOLOGY

Case study background

This study was part of a research project, which had the objective to investigate how medical professionals who occupy leadership positions in Clinical Commissioning Groups (CCGs) conceive their new commissioning role in relation to IT innovation. This objective was met by means of a qualitative case-study approach involving interviews and observations. CCGs were introduced in 2013 as a result of the Health Social Care Act (2012) and are responsible for the planning and commissioning of local health services. Their responsibilities include deciding priorities and strategies and buying services on behalf of the population from providers such as hospitals and community clinics. CCGs are member organisations, in which all local primary care doctors have a (notional) say in its governance (Checkland et al., 2016). The Chair and the majority of CCG board members are also primary care doctors, who are required to take on new managerial responsibilities in the design and delivery of healthcare services.

After several contacts with various CCGs, one CCG in England agreed to take part to the research. Our focus in the case study was on the role of clinical managers in developing a vision for the adoption of IT innovation (Swanson & Ramiller, 1997). In particular, we focused on the pre-implementation phase of two telehealth projects, involving the gathering and evaluation of information for the projects approval, from June 2014 until January 2015. One telehealth project targeted the development of a new service for the diagnosis and treatment of Obstructive Sleep Apnoea (OSA). The other telehealth project was aimed at the monitoring and treatment of Heart Failure (HF) patients. This project was part of a wider initiative for the re-design of the local cardiology service, which, in addition to telehealth, promoted the use of ECGs in primary care. The first author became aware of recommendations for the adoption of ECGs only during data collection. The data analysis revealed the significance of comparing the adoption of a more traditional IT innovation like ECGs, most of which are equipped with analog-to-digital converters to transform ECG readings into digital data, with

telehealth for understanding how clinical managers can manage competing institutional demands that arise from different types of IT innovations.

Funding for both OSA and the re-design of the cardiology service was available in state budget to support local authorities in the integration of health and social care in the community. The CCG approved recommendations for adopting ECGs in primary care and the telehealth project for OSA. It did not approve the telehealth project for HF.

Data collection

The first author conducted sixteen in-depth semi-structured interviews with eighteen participants between July 2014 and January 2015. We selected sixteen participants from a list provided by the Project Manager and including all the key players involved in the OSA telehealth project and the re-design of the cardiology service. Only three people in the list refused to be interviewed. Table 2 lists participants whose data is reported in this study.

Participant's Pseudonym	Organisational Role	Professional Designation	Organisation
Phil	Clinical Commissioner and Chair of the CCG	Primary Care Doctor	CCG
Jocelyn	Clinical Commissioner	Primary Care Doctor	CCG
Jack	Clinical Commissioner	Primary Care Doctor	CCG
Peter	Clinical Lead for Cardiology	Primary Care Doctor	CCG
Stewart	Clinical Lead for Integrated Care	Primary Care Doctor	CCG
Claire	Clinical Lead for Public Health	Primary Care Doctor	Local Authority
Sue	Public Health Lead	Public Health Practitioner	Local Authority
Ed	Project Manager	Social Care Worker	Local Authority
Frank	Ear, Nose and Throat (ENT) Consultant	Physician	OSA Service Provider
John	Ear, Nose and Throat (ENT) Consultant	Physician	OSA Service Provider
Janet	Account Director	Business Consultant	Telehealth Provider for HF

Table 2. List of participants that feature in this study

Other participants, whose data does not feature in this study, include: three senior managers working for the Healthcare Community Provider designated to deliver the two telehealth services, the telecare manager of the

local authority, a secondary care doctor (consultant) with experience in telehealth for HF. Finally, the first author conducted an interview with a specialist nurse and a care manager, who were not directly involved in these projects, but had experience with telehealth for long-term conditions. Each interview lasted about one hour.

Interviews focused on participants' interpretation of the two telehealth projects and the adoption of ECGs in primary care, including initial motivations, changes in attitudes and expectations, main challenges encountered, quality of relationships. In particular, our aim in the interviews was to understand how primary care doctors defined their identities and whether they experienced any changes in relation to their new managerial role. Institutional logics did not inform the development of our data instrument since their relevance became obvious only in the data analysis.

The first author also conducted the observation of two meetings, one about the contractual arrangements for the delivery of telehealth and the other about the organisational requirements of the healthcare organisation designated to host the OSA service. Each meeting lasted thirty and eighty minutes, respectively. Whilst attending these meetings, the first author gained useful information about contractual and organisational arrangements and views among the different parties that were going to be involved in the delivery of telehealth. Both interviews and meetings were audio-recorded, when permission was given, and transcribed. In addition, information was collected at six public CCG board meetings, each lasting two hours. Information from these meetings was useful in setting the IT innovation context and in defining the main institutional logics at play and the relationships of clinical commissioners with members of their medical profession. Aware of the limits of confidentiality, the first author collected information from informal conversations with participants to gain a fresh insight into the main events and circumstances affecting IT innovation. Information about the two telehealth projects and plans to adopt ECGs in primary care, including the main institutional logics driving these initiatives, was also collected from official documents such as business cases. In her field notes, the first author paid particular attention to differences and similarities across data. Such comparison across data was useful in

corroborating and complementing data across different sources (e.g. interviews, documents, observations). Table 6 in the Appendix gives examples of how the integration of data sources strengthened conclusions about the main themes that emerged from the data analysis.

Data analysis

We based the coding and analysis of data on the key ideas of an inductive methodology since our aim was to develop theoretical concepts that were strongly grounded in the data (Glaser & Strauss, 1967; Sarker et al., 2000; Urquhart et al., 2010). Through “open coding” (Strauss & Corbin, 1990), we identified first-order codes (Gioia et al., 2012) and, in particular, common instances of norms, values, and practices related to the adoption of telehealth and ECGs as well as actions and meanings that could be attributed to clinical managers’ identities (an example of first-order codes is in Table 5 in the Appendix).

We then conducted a second-order analysis through “axial coding” in order to organise our codes under a more comprehensive scheme of recurring themes or categories (Strauss & Corbin, 1990) and answer the question “What’s going on here?” theoretically (Gioia et al., 2012). At this stage of analysis, we noticed the tension between competing institutional logics (e.g. tension between PCC logic and medical professionalism). In line with an inductive data analysis, we remained loyal to the data, and through our “theoretical sensitivity” (Sarker et al., 2000), we drew upon existing literature about institutional logics and identities to illuminate our interpretation of the data and identify novel concepts that do not find sufficient explanation in current literature (Gioia et al., 2012). For example, we used the classification of logics summarised in Table 1 to describe the institutional logics found in the data. We also drew on the literature on identities to identify themes about clinical managers’ self-identifications (Alvesson & Willmott, 2002; Lok, 2010), and their role claim and use (Creed et al., 2010; Leung et al., 2014) in relation to conflicting logics (McGivern et al., 2015). More specifically, self-narrations (Brown, 2015; Kyratsis et al., 2017), such as explicit and implicit accounts of self-identifications (Lok, 2010), helped us understand how clinical managers identified themselves in relation to their

hybrid role. We also looked for instances of role claim (Creed et al., 2010), which indicate how clinical managers perceived themselves in relation to their hybrid role, their medical profession, and the conflicting institutional demands of IT innovation. We then identified common patterns of role use (Creed et al., 2010), which indicate how clinical managers used their hybrid role in managing conflicting institutional logics and IT innovation.

The third and final stage of our analysis involved aggregating second-order themes into overarching categories (Gioia et al., 2012), such as the role of hybrids (clinical managers) in relation to IT innovation and medical professionalism and the existence (or absence) of conflict between institutional logics. These aggregate themes represent the core of the theoretical dimensions and relationships that we developed from our data. Figure 2 in the Appendix illustrates our coding scheme, which we used to construct narratives about clinical managers' self-identification and use of their hybrid role in relation to the two telehealth projects and the use of ECGs in primary care. In the following sections, we illustrate these narratives and discuss the key themes and representations that emerged from the interpretation of these narrations.

THE ROLE OF CLINICAL MANAGERS IN IT INNOVATION: A CASE STUDY

Below we present the narratives of the participants in Table 2. We gave participants fictitious names so that it is easy to identify them. First, we provide a brief overview of the CCG's approval process that led to recommendations for the use of ECGs in primary care, the adoption of telehealth for OSA, and refusal to approve telehealth for HF. Next, we illustrate participants' narratives about the two telehealth projects and ECGs in primary care. In these narratives, we identified the institutional logics that characterised discussions about these three types of IT innovation and the hybrids' roles in managing these logics. Hybrids were primary care doctors that occupied clinical managerial positions and included both clinical leads and clinical commissioners. Clinical commissioners and clinical leads represented the administrative elite, in charge of reforming and innovating medical practice, with clinical leads acting as intermediaries between clinical commissioners and primary care doctors (i.e. the rank and file).

Overview of the CCG's approval process of an IT innovation

Any projects or proposals to introduce a new health service had to pass two tests before the CCG could finally approve them. The first test was to have the project approved by a working group. Working groups' membership included primary care doctors and other specialists with expertise in the area of intervention. For example, the working group in charge of the re-design of the cardiology service included one Clinical Commissioner, the Clinical Lead for Cardiology (Peter), a Pharmacist, the Public Health Lead (Sue), and the Project Manager (Ed). This working group recommended the use of ECGs in primary care due to potential savings from shifting basic cardiac diagnostic tests from hospitals to primary care. It also evaluated the business case of the HF telehealth project. The working group in charge of evaluating the telehealth project for OSA had the Clinical Lead for Public Health (Claire) in addition to a Clinical Commissioner and the Project Manager among its members. These groups relied on the advice of clinical leads, which was therefore crucial for the initial approval of the project. After approval from the working group, the Clinical Advisory Board of the CCG had to review the recommendations of the working group and decide whether the project could go ahead. The Clinical Advisory Board included senior clinical managers such as Clinical Commissioners (including Phil, Jocelyn, and Jack) and senior non-clinical managers such as the Chief Finance Officer and the Chief Executive Officer.

The telehealth project for OSA passed the screening of both the working group and the Clinical Advisory Board and was therefore approved and subsequently implemented in September 2015. The Board recognised the potential benefits of telehealth in terms of improved diagnosis of OSA, reduced hospital admissions, and better patient experience. By contrast, the working group decided not to recommend the telehealth project for HF to the Clinical Advisory Board due to concerns that it could increase the workload of primary care doctors and put patients at risk. Table 3 summarises the operational details, potential benefits and risks of the three IT innovations.

Type of IT innovation	Operational details*	Benefits	Risks
Obstructive Sleep Apnoea (OSA)	<ul style="list-style-type: none"> • Patients are given a recording equipment for home diagnosis. • Patients return equipment and data are downloaded at the clinic to confirm OSA diagnosis. • Patients are issued with Continuous Positive Airways Pressure (CPAP) equipment for home treatment. • Clinic conducts weekly and monthly monitoring. • CPAP treatment is terminated when evaluated successfully. 	<ul style="list-style-type: none"> • It improves OSA diagnosis rate. • It brings care closer to home and improve patients' experience. • It reduces care costs by moving diagnosis and care out of hospital into the community. 	<ul style="list-style-type: none"> • Primary care doctors might not recognize the symptoms of OSA. • Primary care doctors might not refer patients to the OSA clinic. • Patients might not know about the new service and choose to go to the hospital instead.
Heart Failure (HF)	<ul style="list-style-type: none"> • Referrals for HF telemonitoring come via patient registers in primary care. • Patients that are suitable for remote monitoring are given equipment to monitor HF at home. • Telecare team monitor and triage data 24/7, responds to false alarms and fault equipment issues, and transfer amber and red alerts to clinical nurse. • Clinical nurse responds to alerts (e.g. calls/visits patients, refers to GP or specialist). 	<ul style="list-style-type: none"> • It reduces hospital admissions and saves money. • It helps recovery by keeping patients at home. • It empowers patients to manage their own health. 	<ul style="list-style-type: none"> • The lack of a specialist nurse to respond to patients' calls can put patient safety at risk and increase primary care doctors' workload. • A specialist nurse can be costly. • It is harder to define patients' cohort to refer to the service (e.g. low/high risk patients).
ECG	<ul style="list-style-type: none"> • ECG detects the electrical signals associated with cardiac activity and produces a graphic record of voltage versus time. • A resting ECG commonly consists of the ECG units, electrodes, and cables. • Most ECGs have an analog-to-digital conversion hardware to convert ECG readings into digital data. 	<ul style="list-style-type: none"> • It saves money by shifting basic cardiac outpatient services from hospitals to primary care. • It allows primary care doctors to develop new competences in cardiology. • It helps early diagnosis of atrial fibrillation, one of the leading risk factors of stroke. 	<ul style="list-style-type: none"> • Primary care practices do not have time and resources to do ECGs. • Primary care doctors might lack the skills to do an accurate reading of ECGs.

Table 3. Operational details, benefits, and risks of IT innovations

** Operational details are based on information in the business cases of the two telehealth projects, the literature on ECGs, and conversations with participants.*

The telehealth project for OSA

OSA is a disorder that causes a temporary cessation of breathing (*apnoea*) or severely reduced air flow (*hypopnoea*) at sleep. When this happens, the patient wakes up and breathes normally for a while before the cycle starts again. OSA is usually diagnosed by a referral for a sleep study requiring an overnight stay in a hospital (CCG, 2014). The CCG aimed to reduce the costs associated with diagnosis and treatment of OSA at the hospital by commissioning a community-based home diagnosis and telemonitoring service from an existing provider that specializes in sleep disorders.

There was consensus among clinical managers that the adoption of telehealth for the diagnosis and treatment of OSA had several advantages: it met clinical needs by improving OSA diagnosis rate, it could bring care closer to home and, therefore, improve patients' experience, and could deliver financial returns by shifting the diagnosis and care of OSA patients from secondary care to the community. In this respect, the telehealth project embodied and reconciled three health service logics: the medical professional logic of delivering a clinically sound and effective intervention, the PCC logic of bringing care closer to home, and the managerialist logic of cutting costs.

As for most healthcare services, the support of primary care doctors was crucial for the success of the new service. Indeed, they had to be made aware of the condition, be able to recognize the symptoms of OSA, and refer the patient to the OSA clinic. For this reason, the new telehealth service could increase primary care doctors' knowledge of the condition and enrich their professional practice. Claire, the Clinical Lead for Public Health involved in the OSA project, summarised the core benefits of the new service as follows:

“[The OSA telehealth service] will increase [primary care doctors'] general knowledge about sleep apnoea, will increase the provision of sleep studies [for the diagnosis of sleep apnoea] and it's more convenient for patients, [...] they don't have to stay overnight in hospital. Given that you're avoiding all these hospital admissions, then it's quite cost effective as well”.

According to Frank, one of the Ear, Nose and Throat (ENT) consultants that worked for the OSA service provider, Claire was a key advocate of the new telehealth service and, in her position as both clinician and Clinical Lead

for Public Health, played a crucial role in convincing the commissioners of its value:

“The reason it worked here is that we [...] had an individual within the CCG who was a public health doctor who understood [...] the clinical benefits and, therefore, [...] presented [our idea to the commissioners] – [...] she was our advocate”.

Claire sat in the working group that approved the OSA telehealth service. The service received the final go-ahead from the Clinical Advisory Board and was then implemented. Jack, one of the Clinical Commissioners, said that the Board's reaction to the new service was positive since it could save money without compromising clinical care. He added that the new telehealth service did not encroach with the primary care doctors' routines and responsibilities and, therefore, it did not challenge the medical practice and professionalism of primary care doctors:

“We are not changing the treatment of OSA, so if we suspect someone of having this condition, we are still going to refer them somewhere because it's not a condition that [we as doctors] can manage in primary care, so the only thing that this is changing is where we refer them to”.

Jack was also present in one of the clinical network meetings with other clinical colleagues who, he said, did not object to the new service since it was going to be “cheaper” and “better for the patient”. Jocelyn, a Clinical Commissioner, explained the role of clinical networks as follows:

“[Clinical networks] don't make decisions [...]. They get information back from GPs about their patients and what we should commission... So [clinical networks] are supposed to be the teeth of clinical commissioning, to really bring things to the patient”.

Through clinical networks and their role of clinical commissioners, doctors were representing medical professionalism by giving voice to the views of their clinical colleagues. In this regard, Jack, one of the Clinical Commissioners, defined the CCG as a “membership organisation”, that is, an organisation whose membership included all primary care doctors in their locality. In explaining his role as Clinical Commissioner, he added:

“I also represent the views of the other [primary care doctors]... So we all have our membership meetings, all the [primary care doctors] go there, we talk about all these different issues and then I bring those views back to the CCG”.

We view this function of representation as an expression of the professional collegiality that unites primary care doctors as members of the same profession under common values, customs, and norms (McDonald et al., 2009). One of the implications of professional collegiality was that clinical managers were concerned that all primary care doctors in the community had the opportunity to feed their views about the telehealth project. For example, in an interview, Stewart, the Clinical Lead for Integrated Care, said that evidence of poor communication and consultation with other clinical colleagues blocked previous initiatives approved by the CCG.

To conclude, our findings suggest that the Clinical Commissioners successfully approved the OSA telehealth service for two main reasons. First, there was a clinical manager (or hybrid) (i.e. Claire, the Clinical Lead for Public Health), who was also an *innovation advocate*, namely, she was willing and able to act as the advocate for IT innovation and convince clinical commissioners of its value. Second, the new telehealth service did not present particular challenges since, by moving the diagnosis and treatment of OSA out of hospitals into the community, it was not going to disrupt medical professionals' practice. Therefore, the logics of PCC and managerialism that it embodied were not in conflict with the logic of medical professionalism and did not stand in the way of clinical managers' role of representation of their clinical colleagues. In addition, primary care doctors could take advantage professionally from the new service by learning more about the OSA condition. In this sense, the OSA telehealth service could be seen as benefitting medical professionalism.

The telehealth project for HF

The re-design of the cardiology service envisaged the use of telehealth for the community-based monitoring and assistance of HF patients. Most cardiology patients were sent to outpatient clinics at hospitals because community services lacked the necessary equipment and staff to look after them. So cardiology patients were monitored and treated in the acute sector. As a

result, the pressure to reduce hospital admissions and cut healthcare costs was high. In an interview Ed, the Project Manager in charge of telehealth, explained they planned to use the existing telecare team to monitor data received from the equipment installed in the patient's home. Once all false alarms, fault equipment issues, etc. had been cleared, data would be sent to a community nurse to provide appropriate clinical response to alerts.

The telehealth service for HF embodied both logics of managerialism and PCC since it matched the financial need of cutting costs with the clinical need of improving patients' outcomes by moving care closer to home. For example, asked about the opportunities that telehealth would offer for her profession as a primary care doctor and her role as a Clinical Commissioner, Jocelyn replied:

“So, as a [primary care doctor], telehealth might potentially keep people out of hospital, it might mean people consult with me less. It might mean better health for the patients, it might mean [patients] feel more empowered about managing their own conditions. As a commissioner, it might reduce people going into hospital, which will ultimately save money”.

One of the apparent challenges of this particular telehealth project was the tension between the logics of PCC and medical professionalism that it could potentially create. More specifically, Peter, the Clinical Lead for Cardiology, was vocal about the negative impact that telehealth could have on the workload of primary care doctors by moving care out of hospital into primary and community care:

“I’m being given the hardware but with no system or pathway for it to feed into. [...] I’ve been trying to speak with [Ed, the Project Manager] saying, “How does that infrastructure work?”... Does it give clinicians more work? Does it make patients more anxious?”

Sue, the Public Health Lead for the Local Authority, attended the cardiology working group, which discussed the need for a competent, trained healthcare professional (e.g. a specialist nurse) who was going to pick up alerts triggered by the telehealth system. According to Sue, the working group echoed Peter's concerns about the safety of the patient and that the lack of someone that was sufficiently prepared and competent to do the monitoring

would cause more calls to primary care doctors' practices and increase their workload. As far as clinical safety was a concern, Sue said:

“[Primary care doctors] do things with clinical safety in mind [...] so they would want more clarity on how [telehealth] would fit into the way they already deliver”.

Given the uncertainty around safety and workload issues, the working group for cardiology did not approve the telehealth project and asked Ed, the Project Manager, to report back with more evidence about how the telehealth service could be delivered without compromising clinical care. Janet, the Business Consultant of the provider in charge of the telehealth equipment, suggested that doctors' requests for more evidence usually conceal their concerns about the impact of telehealth on their workload:

“[Primary care doctors] are always saying that there's not enough evidence. I don't think that that's even the kind of the hurdle around it because there's lots of evidence [that telehealth works], but they are genuinely concerned about their workload [...] they want to make sure that it's not asking them to do one more thing”.

Therefore, we interpret the request for more evidence as a way through which clinical managers sought to protect the integrity of their medical practice. Thus, instead of acting as mediators between conflicting logics, clinical managers acted as buffers between telehealth and clinical colleagues in order to protect medical professionalism. For example, Jocelyn, one of the Clinical Commissioners, said that they were not expecting much involvement in the telehealth project from primary care doctors until they had more evidence about its benefits:

“At the moment [the telehealth project] probably has to be driven by us as the CCG and then we have to think about what commitment [...] and buy-in we need from other colleagues”.

Phil, Clinical Commissioner and Chair of the CCG, suggested that doctors are not “creative people” and can therefore easily “tear apart” an innovation if they are not fully convinced of its value:

“If you give doctors the opportunity they will have shredded [an innovation], they will interrogate and tear it apart and look for all the faults, because they're not naturally creative people, so they look for flaws”.

Thus, the need for evidence is a “delaying tactic” not only to protect medical professionalism from telehealth, but also to protect telehealth from medical professionalism itself. For this reason, clinical managers identified themselves as medical professionals, which required them to place the clinical impact of telehealth under tight scrutiny as, Phil, Clinical Commissioner and Chair of the CCG, suggested in this interview:

“[An innovation] has to go through a number of test questions, the cynical older questions: ‘Why is that better than what we’re using now? Is it as safe?’ [...]. So our role is [to ensure] safety, scrutiny, reliability, confidentiality, all the things that [make us (doctors)] known as conservative”.

Clinical commissioners’ identification as being conservative like all the other doctors shows their strong sense of professional collegiality and identification with their peers. This directed the scrutiny of the adoption of telehealth towards what they felt were the expectations of their clinical colleagues. One of the downsides of this approach was clinical commissioners’ apparent behaviour as *innovation laggards* who lack initiative, creativity, and authority to innovate as Peter, the Clinical Lead for Cardiology, explained in this quote:

“The trouble with the CCG is often they – [...] they don’t look outside of the box. [...] – I don’t feel as though [the CCG] has always moved on quickly and [...] you [as clinical lead] have not been given a mandate to [...] get on and change things”.

To summarize, unlike the OSA telehealth service, the telehealth project for HF did not move forward for the following reasons. First, in spite of reconciling managerialism with PCC, its logic of PCC was at odds with the integrity of doctors’ medical practice. Second, clinical managers did not use their hybrid role to mediate between these contradictory logics, but they acted as buffers to protect medical professionalism from telehealth. In addition, they strongly identified themselves with their professional college (or clinical colleagues) to the extent that they evaluated telehealth based on the same medical professional principles that delayed its implementation.

Recommendations for the use of ECGs in primary care

The cardiology working group made recommendations that GPs should do more cardiology tests in their clinics before sending patients to hospitals. Sue, the Public Health Lead for the Local Authority and member of the cardiology working group, recalled that these recommendations originated from a review of their cardiology pathway:

“All the different pathways flow from GP to outpatient clinics, and then to secondary care; [...] we analysed activities, how much has been spent, [...] and from there we just made some recommendations suggesting that GPs should do more tests in their clinic, before sending patients out. [...] So [...] we just made recommendations on how [GPs] could manage their patients better before entering into secondary care”.

The managerialist logic of saving costs was a key driver of these recommendations given that the CCG could save money by shifting basic cardiac outpatient services from hospitals to primary care. ECGs were among the cardiology tests that GPs were required to perform in their practices. Yet, in spite of the CCG's recommendations, some GPs decided not to do ECGs because they did not want to increase their already heavy workload. Comparing the experience with ECGs with the possibility of adopting telehealth in the future, Sue, the Public Health Lead, said:

“We did recommend [...] doing ECGs in [primary care...], but some doctors said they [...] did not have the time to do it. So, if they're not having time to even do ECGs, how would patients [...] on telehealth [...] impact their workload?”

In contrast with telehealth, Peter, the clinical lead for cardiology did not echo primary care doctors' concerns about the inability to carry out ECGs because of excessive workload. Instead, he sought to convince his clinical colleagues of the cost-savings of doing ECGs within primary care:

“Why are some of my [clinical] colleagues referring for an ECG to [secondary care] when they charge us £50 to do that and yet the machine costs [...] a thousand pounds? [...] So that's my job, to say, “Right why are we spending all this money on this? I – clinicians, coming in and speaking with [Commissioning Managers] can give that insight, because [Commissioning Managers] are not doctors”.

In this example, Peter took on the role of *innovation broker* between the management decision in support of an IT innovation and medical professionals, by providing a managerialist argument in favour of ECGs in primary care. Specifically, he leveraged his hybrid role to adopt principles of managerialism and transform medical practice, thereby *reconciling managerialism with medical professionalism*. Both clinical commissioners and clinical leads identified themselves in this role, which involved providing clinical guidance and advice to translate managerial ideas and plans into medical practice. For example, Jack, a Clinical Commissioner, said:

“[...] it may be that [commissioning managers] have a great idea, they start running with it, but then they encounter a problem two years down the line because in real terms it doesn't work. So [...] my job [...] is to [say...] ‘Will it work in reality?’, or if not ‘what might you change to make it work?’”

The role of *clinical managers in reconciling managerialism with medical professionalism* was important because it could gain the support of primary care doctors to IT innovation. For example, Stewart, a primary care doctor and Clinical Lead for Integrated Care working closely with commissioners for the re-design of the cardiology pathway, suggested that a key role for commissioners was to twist the managerialist argument in favour of primary care. In other words, they should convince primary care doctors of the opportunities of reinvesting the money saved from hospital admissions into primary care:

“[Primary care doctors] [...] need to understand the benefits of preventing hospital admissions so that there is actually capacity to take money out of secondary care to invest in primary care and community services. They need to see that ultimately there is a win in it for them.”

Peter, the Clinical Lead for Cardiology, also added – “as doctors we are very much evidence-based” – and that they followed NICE’s (National Institute for Clinical Excellence) clinical guidelines when making recommendations for changes in their clinical pathways, such as introducing ECGs in primary care¹.

¹ For example, one of NICE’s clinical guidelines on Atrial Fibrillation published in 2014 was to “Perform an electrocardiogram (ECG) in all people, whether symptomatic or not, in whom atrial fibrillation is suspected because an irregular pulse has been detected”. It is then the responsibility of clinical commissioners to establish how this guideline can be implemented (National Institute for Health and Care Excellence, 2014).

“Commissioners are [...] very good with money, but [...] a lot of them wouldn’t know what an ECG was and whether it could be done in a GP environment [...]. Do I make a decision on how [patients] are treated? No, we go via local guidelines and national guidelines. [...] If NICE recommends that X, Y and Z is done, we try and make sure that that pathway is present”.

In their clinical guidelines for Atrial Fibrillation, for example, NICE stated that their recommendations follow “careful consideration of the evidence available” (National Institute for Health and Care Excellence, 2014). In other words, their guidance is evidence-led. This gives doctors reassurance about the clinical safety and cost-effectiveness of their recommendations.

To conclude, the managerialist logic of saving costs drove recommendations for adopting ECGs in primary care. This logic created tensions with the medical practice of GPs, who were concerned about the workload implications of carrying out ECGs in their practice. As opposed to the case of telehealth for HF, clinical managers used their hybrid role to mediate between managerialism and medical professionals’ concerns about the integrity of their medical practice. Unlike telehealth, there were clear clinical guidelines that informed clinical commissioners’ recommendations for the use of ECGs in primary care.

The institutional impact of IT and clinical managers’ role in IT innovation

In the case study, we analysed three types of IT innovation: the telehealth service for OSA and, as part of the re-design of the local cardiology service, the telehealth service for HF and the use of ECGs in primary care. As summarised in Table 4, each of these different types of IT innovation had different effects on the relationship among multiple institutional logics, which is reflected in clinical managers’ (or hybrids’) role as innovators. Next, we discuss these different roles and draw on the re-stratification thesis (Freidson, 1994) to interpret our findings.

Institutional impact of IT innovation	Hybrids' role as innovators
<i>Telehealth for OSA</i> : reconciles managerialism, PCC logic, and medical professionalism.	<ul style="list-style-type: none"> • <i>Innovation advocate</i>: acts as advocate of IT innovation.
<i>Telehealth for HF</i> : reconciles managerialism with PCC, but PCC logic creates tension with medical professionalism.	<ul style="list-style-type: none"> • <i>Innovation laggard</i>: acts as buffer between IT innovation and medical practice and evaluates IT innovation based on medical professional principles (e.g. clinical safety).
<i>ECG</i> : embeds managerialist logic of cost-saving. This creates tension with medical professionalism.	<ul style="list-style-type: none"> • <i>Innovation broker</i>: mediates between managerialism and medical professionalism to transform medical practice and convince doctors of the benefits of IT innovation.

Table 4. Clinical managers' use of their hybrid role in IT innovation

The telehealth project for OSA reconciled the managerialist and PCC logics and, most of all, did not challenge the logic of medical professionalism. On the contrary, clinical managers, namely, the administrative elite, felt that the new service could enrich the medical practice of primary care doctors (or rank and file) by increasing their knowledge of OSA. For these reasons, this project did not involve any particular conflict between clinical managers' role as hybrids and their medical professional identities. In this occasion, Claire, the Clinical Lead for Public Health, was fully supportive of the telehealth project and behaved as *innovation advocate*, i.e. someone that is willing and capable of being the advocate for telehealth and convince other clinical managers of its value.

By contrast, the conflict between clinical managers' hybrid role and their identity as medical professionals became evident when they perceived the PCC logic of the telehealth project for HF as disrupting medical practice and, therefore, as being at odds with medical professionalism. Despite reconciling managerialism with PCC, the telehealth project for HF was less successful in mediating between the PCC logic and medical professionalism. This explains the dominance of medical professionalism in influencing clinical managers' reaction to the HF project. Instead of activating their role as mediators between opposite logics, which represented clinical managers' identification (Lok, 2010) with their hybrids' role, clinical managers clung on to their sense

of professional collegiality, thereby, acting as *representatives of medical professionalism*. As a consequence, their identity as medical professionals had a strong influence on how they evaluated the telehealth project for HF. By drawing on principles of medical professionalism, such as safety, which had important implications for lines of responsibility and the workload of primary care doctors, clinical managers acted as *innovation laggards*. Even though concerns about safety and workload were genuine and legitimate, we consider the role of innovation laggards to be passive, in that it did not attempt to reconcile differences between the logics of telehealth and medical professionalism but just took such differences for granted. In particular, in contrast with the clinical lead for OSA, by playing this passive role towards innovation, the clinical lead for cardiology delayed the implementation of telehealth and acted mostly as a representative of the safety and workload concerns of his clinical colleagues, i.e. other primary care doctors.

The fact that the clinical lead for cardiology was sceptical about telehealth does not mean that he was averse to innovation. On the contrary, in an effort to mediate between managerialism and medical professionalism and transform medical practice, he performed the role of *innovation broker* to convince his clinical colleagues of the cost-saving benefits of integrating ECG into primary care, regardless of their concerns about excessive workload. This example shows that clinical managers were not passive individuals, but they could negotiate their social position (Battilana, 2011) as administrative elite (Freidson, 1994; McDonald et al., 2009) to reconcile the logics of IT innovation with medical professionalism. Not only could they shape IT innovation, but they were also aware of the power of IT innovation to shape their profession.

One possible explanation for the clinical lead's different approach to IT innovation is that recommendations for the use of ECGs into primary care benefitted from some sort of legitimacy within medical professionalism that telehealth for HF did not have. More specifically, the clinical lead and members of the cardiology working group made such recommendations in line with NICE guidelines. These guidelines were evidence-led and were thus a source of legitimacy for the adoption of ECG in primary care. Drawing on the re-stratification thesis (Freidson, 1994), NICE corresponds to the

knowledge elite of medical professionalism, which develops new standards for medical practice that the administrative elite, in this case the clinical lead for cardiology, has to enforce on rank and file (i.e. primary care doctors). Telehealth started mainly as a PCC initiative to integrate health and social care within the community and, in line with managerialism, save money on hospital admissions and consultations. Therefore, it lacked the legitimacy from the knowledge elite, i.e. a body of professionals that could guarantee about its safety and clinical effectiveness. This might explain why the clinical lead for cardiology neutralised his hybrid role and acted as innovation laggard by requesting more evidence about the impact of telehealth on medical practice.

DISCUSSION

Professional hybrids' role in managing competing institutional logics in IT innovation

Clinical managers occupy a key position for the success of IT innovation. Not only can they leverage their organisational status to promote the adoption of IT innovation, but they can also use their hybrid role as managerial professionals to negotiate tensions and contradictions across professional boundaries and logics. Even though research has recognised differences in the way hybrids might use their role to manage conflicting logics and influence change (McGivern et al., 2015), the way hybrids use their role to facilitate IT innovation has not been fully explored. In addressing this gap, our study answers the following research question: *how do clinical managers reconcile differences among competing institutional logics that affect IT innovation in healthcare?* In response to our research question, our study found that how clinical managers perceived their hybrid identity and the adoption of IT innovation in relation to their profession influenced their role as “innovators” in mediating among competing logics. Figure 1 illustrates the theoretical contribution of our findings and, more specifically, the role of hybrids in the management of competing institutional logics in IT innovation.

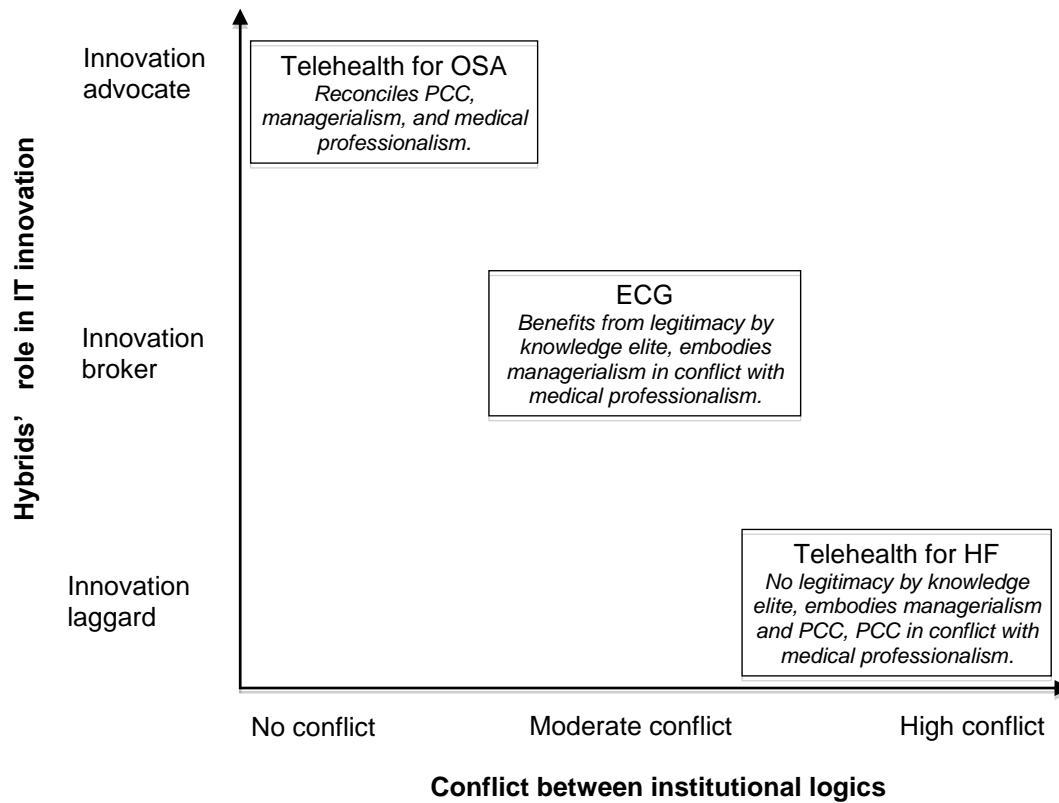


Figure 1. The role of hybrids in managing competing institutional logics in IT innovation

On the horizontal axis we show the degree of conflict between institutional logics. On the vertical axis we show the roles that clinical managers or hybrids can assume in dealing with different degrees of conflict between logics. Based on the three examples of IT innovation in the case study (telehealth for OSA, telehealth for HF, and ECGs), we identified three degrees of conflict between logics (no conflict – moderate – and high) and three roles in IT innovation (innovation advocate, innovation broker, innovation laggard), respectively.

First, the project of telehealth for OSA showed that a clinical manager is more likely to act as an innovation advocate in a situation where an IT innovation reconciles multiple logics (e.g. PCC, managerialism, and medical professionalism) and, consequently, does not involve a conflict with either the hybrid identity of clinical managers (or administrative elite) or the medical professional principles of clinical care held by primary care doctors (or rank and file). An innovation advocate that acts in this situation can potentially lead

to the emergence of a hybrid logic, but one that is more contingent upon his or her competency and the context in which he or she operates.

Second, the example of ECGs suggests that the cost-saving logic of managerialism that drives an IT innovation can lead to moderate conflict with medical practice when it promotes practices in line with recommendations from a knowledge elite (e.g. NICE). Since these recommendations reflect common principles of medical professionalism (e.g. evidence-based medicine), clinical managers are more likely to use their hybrid role and act as innovation brokers. In this role, they draw on managerialism to execute the recommendations of the knowledge elite and support the adoption of an IT innovation to transform the medical practice of rank and file.

Finally, the example of the telehealth project for HF showed that clinical managers may perceive a higher conflict between the PCC logic of an IT innovation when this contradicts the medical professional principles of clinical care (e.g. safety) and, at the same time, lacks the legitimacy of a knowledge elite. In addition, even though PCC can accommodate elements of managerialism (e.g. by promoting cost savings), its emergent nature and the fact that it has little in common with clinical managers' hybrid identity makes clinical managers' task of reconciling it with medical professionalism even harder. Our findings suggest that, under these circumstances, clinical managers are more likely to act as representatives of the medical professional logic. By doing so, they perform as innovation laggards who act as buffers between IT innovation and their clinical colleagues (the rank and file) by evaluating IT innovation according to the principles of medical professionalism.

Therefore, for clinical managers (namely, the administrative elite) to act as innovators that facilitate IT innovation across multiple logics, the IT innovation has to be presented in a way that acknowledges the concerns of medical practitioners (i.e. rank and file). If IT innovation is represented as breaching the boundaries of what is considered legitimate within medical professionalism (normally represented by the knowledge elite), clinical managers are less likely to leverage the social position of their hybrid role to persuade medical practitioners of the value of IT innovation.

Professional governance and IT innovation

According to Freidson (1985), professional elites are more detached from and directive of everyday professional work to the extent that they break norms of professional solidarity and collegiality. By contrast, in line with other studies (McDonald et al., 2009), clinical commissioners' identification of the CCG as a "membership organisation" demonstrates that professional collegiality is important for the exercise of elites' authority. In particular, our study suggests that those clinical managers that lack a cohesive hybrid identity (Spyridonidis et al., 2015), due to a strong sense of professional collegiality, find it more difficult to be pro-active innovators and enact a coherent and decisive response to the conflicting institutional demands of IT innovation.

The strength of professional collegiality across the hierarchy of the medical profession (i.e. rank and file, administrative elite, and knowledge elite) represents the persistence of medical professionalism and the ability of medical professionals to readapt to external changes and accommodate managerialism (Exworthy et al., 2019). In the case study, clinical managers demonstrated confidence in bridging between the managerialist and medical professional logics in support of an IT innovation (see the example of ECGs). Therefore, doctors can deflect managerial challenges, fending off managerialism. Yet, PCC is a different sort of challenge as it is directed to the apparent core purpose of the profession – the patient. The shift of some hospital services into the community under the PCC logic requires different healthcare professions to work together. This might increase a sense of vulnerability and loss of control in medical professionals, who need a greater sense of trust in other professions (e.g. nurses or social workers). Under these circumstances, clinical managers might perceive higher conflict between the PCC logic and their professional identity and, therefore, be less willing to leverage their social position to facilitate IT innovation (see example of telehealth for HF). Therefore, the role of IT innovations in reducing conflict between logics is crucial in reducing medical professionals' sense of vulnerability and the dominance of medical professionalism with respect to other logics. This may also result in greater clinical managers' commitment to IT innovation (see example of telehealth for OSA).

Medical professionals' sense of vulnerability in relation to an IT innovation and the institutional logic that it represents leads us to our next point, that is, the importance of standardised professional guidelines that administrative elites use to evaluate the effectiveness of an IT innovation and govern their professional colleagues (or rank and file) (Ferlie et al., 2012). An example is guidelines of clinical safety established by knowledge elites (e.g. NICE) as a complex form of discipline and "self-surveillance" (Waring, 2014) and used by clinical managers to evaluate an IT innovation. The interpretation of evidence is both contextual and contested (Fitzgerald et al., 2003) due to the role of institutional logics in filtering actors' perceptions about the risk and effectiveness of IT investments (Mola & Carugati, 2012). The case study showed that from the point of view of a medical professional, the apparent lack of evidence of clinical effectiveness and, most of all, clinical safety is strongly related to workload concerns and the integrity of medical practice. Therefore, there is a strong connection between evidence about the clinical effectiveness of a new IT innovation and the *subjectivity of medical professionals* (Ferlie et al., 2012). The perceived lack of such evidence might increase doctors' sense of vulnerability to IT innovation and reduce clinical managers' willingness to mediate between medical professionalism and the competing logics that an IT innovation embodies.

IMPLICATIONS AND CONCLUSION

Our first contribution is to provide an increased understanding of the role of "clinical leaders" in facilitating IT innovation, which remains overlooked in current research (Davidson & Chismar, 2007; Oborn et al., 2011; Rivard et al., 2011). The clinician dimension has specific connotations given the traditional resistance of doctors to external reform to their sense of autonomy, and to the traditional doctor-patient encounter (Exworthy et al., 2003). By drawing on recent work on the sociology of (clinical) professions (McDonald, 2017; McDonald et al., 2009; McGivern et al., 2015; Spyridonidis et al., 2015), our research unveils how clinical managers' perception of their hybrid role in relation to their profession influences how they respond to the conflicting institutional demands that challenge IT innovation in healthcare (Boonstra et al., 2008; Bunduchi et al., 2015; Pouloudi et al., 2016; Rivard et al., 2011). We

contend that clinical managers that are entrusted by their clinical colleagues to fill in a managerial role are more wary of the consequences that IT innovation may have on their profession.

Beyond healthcare, our second contribution concerns the role of professions and different occupational groups in facilitating digital transformation at the intersection of multiple institutional logics. We posit that the role of hybrids is not unique to clinical managers but operates in non-healthcare contexts of digital transformation too. Recent research suggests that success of IT innovations depends on users' continuous effort of compromising between the professional norms that guide their action and norms of standardisation and efficiency embedded in IT innovations (Berente & Yoo, 2012).

Other studies imply that some logics (e.g. IT professionalism vs. managerialism) are easier to reconcile than others (e.g. IT professionalism vs. medical professionalism) (Boonstra et al., 2017). We add to this body of research by showing how different types of IT innovations can influence the extent to which different institutional logics are either complementary or competing. In addition, we demonstrate the crucial role of professional-managerial hybrids (Waring, 2014) in polarising or bridging between logics that affect IT innovation (Boonstra et al., 2017) and in determining the strategies of association with and disassociation from IT innovations that threaten the autonomy of professional practice (Jensen et al., 2009). More specifically, in our case study, we identified three degrees of conflict between institutional logics: "no conflict", "moderate conflict", and "high conflict". Each of these degrees of conflict corresponded to a specific hybrids' role in IT innovation, namely, innovation advocate, innovation broker, and innovation laggard, respectively.

By drawing on the re-stratification thesis (Freidson, 1985), we were able to analyse to what extent clinical managers (or administrative elites) were willing to enrol clinical colleagues (or rank and file) to support an IT innovation. In particular, we further demonstrate that the potential of hybrid identities in compromising between multiple logics is hard to realise in the case of professions whose hierarchical and self-governing structures are grounded in deep-seated professional guidelines and a broader sense of

professional autonomy. For example, in our case study clinical managers (or administrative elites) had to consider professional guidelines from knowledge elites and concerns about the integrity of clinical practice from rank and files before making IT-related decisions. Therefore, whereas recent research points to the need for organisations to include professional values and cultures in support of digital transformation (Tumbas et al., 2018), the internal structures through which certain professions regulate their own work makes this task more difficult and can raise barriers to the boundary spanning function of IT systems across occupational groups (Mola & Carugati, 2012).

Finally, our work has implications for practice. In particular, it shows that by mediating between conflicting logics, clinical managers can act as innovation brokers between management decisions of adopting IT innovation and medical professionals. In this way, they can more effectively facilitate the adoption of an IT innovation in medical practice. By contrast, clinical managers can undermine the success of an IT innovation by acting exclusively as representatives of medical professionalism. Our case study suggests that clinical managers need to work more closely with IT professionals and other professional groups in finding ways of integrating IT innovations that have proven clinical and efficiency benefits into their professional practice.

Even though our case study raises implications for understanding IT innovation in various professional contexts, its findings are not without limitations and need to be understood in relation to the context of primary care and the recent establishment of CCGs for the commissioning of healthcare services in England. In the current situation of underfunding and the increasing demands of an aging population, primary care doctors are understandably wary of IT innovations that might require their additional time and effort. In addition, at the time of this research, the CCG that we studied had been in place for no more than three years. This means that the clinical commissioners that we interviewed were still at the beginning of their career as clinical managers and their organisations were still novel. Future research could take a longitudinal approach to investigate how conflict in logics might shift over time and how clinical managers' and other managerial professionals' roles as innovators might change as IT innovation unfolds.

Further studies could also research how professionals' motivation for taking on a managerial position (McGivern et al., 2015) might influence their role in facilitating IT innovation.

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